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10/626,446	07/24/2003	William R. Trutna JR.	10004287-1	9639

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AZEMAR, GUERSSY	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/626,446	TRUTNA, WILLIAM R.	
	Examiner	Art Unit	
	Guerssy Azemar	2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Journal of Lightwave Technology, vol. 6, No. 3, hereafter referred to as Foschini et al. in view of Odenwalder (US 6,621,875).

(1) With respect to claim 1:

As shown in page 372 in figure 2, Foschini et al. teaches an optical communication system for communicating one or more information signals, the optical communication system comprising an optical transmitter (transmitter at j in figure 2), the optical transmitter comprising:

a light source (Laser OSC in figure 2);

modulator means for modulating light generated by the light source in response to the spread-spectrum information signals to generate a spread-spectrum optical signal for transmission (page 3, left column, paragraph A. Modulation and Spreading). the spread-spectrum optical signal having an amplitude modulation representative of the sum of the spread-spectrum information signals.

However, Foschini et al. does not teach the spread spectrum encoders corresponding in number to the information signals, the spread spectrum encoders

operable to multiply the information signals by respective pseudo-noise code sequences to generate respective spread-spectrum information signals.

Odenwalder teaches the spread spectrum encoders corresponding in number to the information signals (QPSK, QPSK1… in figure 4), the spread spectrum encoders operable to multiply the information signals by respective pseudo-noise code sequences to generate respective spread-spectrum information signals.

Foschini et al. does not necessarily disclose an amplitude modulation representative of the sum of the spread-spectrum information signals. However, Odenwalder sums a multiple of encoders, which results in a single amplitude (160 and 161 in figure 4). The resulting amplitude can be modulated with a laser signal in a spread-spectrum communication system for increased flexibility or capacity. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the encoders as taught by Odenwalder and modulate their sum with the laser source disclosed by Foschini et al. because it allows a transmit system to transmit at a variety of data rates (column 7, line 40).

(2) With respect to claim 2:

Foschini et al. teaches all of the subject matter as described above, except for the optical communication system of claim 1, wherein the modulator means comprises:

an analog summer connected to receive the spread-spectrum information signals from the spread-spectrum encoders and operable to sum the spread-spectrum information signals to provide a modulation signal.

Odenwalder teaches an analog summer connected to receive the spread-spectrum information signals from the spread-spectrum encoders and operable to sum the spread-spectrum information signals to provide a modulation signal (160 in figure 4).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the summer as taught by Odenwalder to provide an information signals to provide a modulation signal as taught in the transmitter of Foschini et al. because it allows many different types of data at the input of the transmitter. Hence it enhances the flexibility of the system (column 8, line 53).

3. Claims 3, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Foschini et al. and Odenwalder (US 6,621,875) as applied to claim 1 above, and further in view of Nagatani et al. (6,097,714).

(1) With respect to claim 3:

Foschini et al. and Odenwalder teach all of the subject matter as described above, except for the optical communication system, wherein the modulator means comprises:

modulators each connected to receive the light and a respective one of the spread-spectrum information signals and operable to modulate the light in response to the one of the spread-spectrum information signals to provide a spread-spectrum optical signal component; and

an optical combiner arranged to receive the spread-spectrum optical signal components from the modulators and operable to spatially overlap the spread-spectrum optical signal components to generate the spread-spectrum optical signal.

Nagatani et al. teaches modulators ("Spread spectrum modulating unit" 51.1 to 51.n in figure 1) each connected to receive the light and a respective one of the spread-spectrum information signals (63 in figure 1, "Spreading code generator") and operable to modulate the light in response to the one of the spread-spectrum information signals to provide a spread-spectrum optical signal component; and

an optical combiner (52 in figure 1) arranged to receive the spread-spectrum optical signal components from the modulators (" 51.1 to 51.n in figure 1) and operable to spatially overlap the spread-spectrum optical signal components to generate the spread-spectrum optical signal (52 in figure 1).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the combiner as taught by Nagatani et al. to receive the signals of Foschini et al. and Odenwalder because it would have made the transmitter more flexible.

(2) With respect to claim 9:

Foschini et al. and Odenwalder teach all of the subject matter as described above, except for the optical communication system, wherein the PN code sequences are all orthogonal or quasi-orthogonal to each other.

Nagatani et al. teaches the optical communication system, wherein the PN code sequences are all orthogonal or quasi-orthogonal to each other (figure 25, shows the construction of orthogonal code, column 10, line 30).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use orthogonal code as taught by Nagatani et al. in the pseudo-noise

sequences taught by Foschini et al. since that is known to reduce interference among the different signals.

(3) With respect to claim 10:

Foschini et al. and Odenwalder teach all of the subject matter as described above, except for the optical communication system, wherein the spread-spectrum encoder comprises:

a code sequence generator configured to generate a PN code sequence; and

a multiplier connected to receive one of the information signals and the respective PN code sequence, the multiplier operable to multiply the one of the information signals by the respective PN code sequence to produce the respective spread-spectrum information signal.

Nagatani et al. teaches the optical communication system, wherein the spread-spectrum encoder comprises:

a code sequence generator configured to generate a PN code sequence (column 1, lines 35-38); and

a multiplier (column 1, line 36) connected to receive one of the information signals and the respective PN code sequence (column 1, line 36), the multiplier operable to multiply the one of the information signals by the respective PN code sequence to produce the respective spread-spectrum information signal (column 1, line 37).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the a code sequence generator and a multiplier as taught by

Nagatani et al. in the transmitter of Foschini et al. since they make possible the spread spectrum system, which allows for higher capacity and less interference among the different signals.

4. Claim 4 - 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Foschini et al. and Odenwalder (US 6,621,875) and Nagatani et al. (6,097,714) as applied to claim 3 above, and further in view of Mori (4,269,482).

(1) With respect to claim 4:

Foschini et al. and Odenwalder and Nagatani et al. teach all of the subject matter as described above except for the optical communication system, wherein the light source comprises lasers corresponding in number to the information signals.

Mori teaches the optical communication system, wherein the light source comprises lasers corresponding in number to the information signals (fs1...fsm in figure 2).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the multiple lasers as taught by Mori in transmitter of Foschini et al. because it promises to obviate cross modulation (column 1, line 27).

(2) With respect to claim 5:

Foschini et al. and Odenwalder and Nagatani et al. teach all of the subject matter as described above. Nagatani et al. further teaches electrical conductors (line connecting block 63 in figure 1) arranged to connect the spread-spectrum information signals from the spread-spectrum encoders to the modulation inputs (input from spread spectrum generator into block 64) of respective ones of the lasers and operable to

cause the spread-spectrum information signals to modulate the light generated by the lasers to provide respective spread-spectrum optical signal components.

Foschini et al. and Odenwalder and Nagatani et al. do not teach the light source comprising lasers each comprising a modulation input.

Mori teaches the light source comprising lasers each comprising a modulation input (fs1-fsm "laser inputs" to M1-Mm "modulators" in figure 2).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the multiple lasers as taught by Mori in transmitter of Foschini et al. because it promises to obviate cross modulation (column 1, line 27).

(3) With respect to claim 6:

Foschini et al. and Odenwalder and Nagatani et al. teach all of the subject matter as described above. Nagatani et al. further teaches the optical communication system additionally comprises additional ones of the optical transmitters (51.1 to 51.n in figure 1) and

the optical communication system additionally comprises a wavelength division multiplexer connected to receive the spread-spectrum optical signals from the optical transmitters (52 in figure 1) and operable to multiplex the spread-spectrum optical signals for transmission (output of 51.1 to 51.n in figure 1).

However, Foschini et al. and Odenwalder and Nagatani et al. do not teach the light sources of the optical transmitters generate light at mutually different wavelengths.

Mori teaches the light sources of the optical transmitters generate light at mutually different wavelengths (fs1 and fc1, fs2 and fc2... in figure 2).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the mutually different wavelengths as taught by Mori in transmitters of Foschini et al. because it promises to obviate cross modulation (column 1, line 27).

(4) With respect to claim 7:

Foschini et al. and Odenwalder and Nagatani et al. teach all of the subject matter as described above. Nagatani et al. further teaches the optical communication system, wherein the PN code sequences used in each of the transmitters are all orthogonal or quasi-orthogonal (figure 25, shows the construction of orthogonal code, column 10, line 30).

(5) With respect to claim 8:

Foschini et al. and Odenwalder and Nagatani et al. teach all of the subject matter as described above. Nagatani et al. further teaches the optical communication system, wherein the PN code sequences used in each of the transmitters are all orthogonal or quasi-orthogonal to each other (figure 25, shows the construction of orthogonal code, column 10, line 30) at least in pairs of the optical transmitters of adjacent optical channels (column 5, lines 27-29 talks about first orthogonal sequence and second orthogonal sequence, which are transmitted from first and second transmitter onto the adjacent channel).

5. Claims 11-16, 21, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Myers et al. (20030072051) in view of Nagatani et al. (6,097,714).

(1) With respect to claim 11:

Myers et al. teaches an optical communication system for communicating one or more information signals, the optical communication system comprising an optical receiver, the optical receiver comprising:

an optical detector arranged to receive a spread-spectrum optical signal representing at least one spread-spectrum information signal (18 in figure 1).

at least one spread-spectrum decoder (14 in figure 1) connected to receive the spread-spectrum electrical signal from the optical detector, each spread-spectrum decoder operable to despread the spectrum of one of the spread-spectrum information signals represented by the spread-spectrum electrical signal to recover a corresponding information signal (14 in figure 25).

However, Myers et al. does not teach each spread-spectrum information signal having a spectrum spread by a respective pseudo-noise (PN) code sequence.

Nagatani et al. teaches each spread-spectrum information signal having a spectrum spread by a respective pseudo-noise (PN) code sequence (column 1, lines 36).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the pseudo-noise code sequence as taught by Nagatani et al. in the receiver of Myers et al. since it is a well known source of random data bits, which makes possible the spread spectrum transmission, therefore is responsible for a transmission system's improved capacity and noise tolerance.

(2) With respect to claim 12:

Myers et al. teaches all of the subject matter as described above, except for a code acquisition circuit connected to receive the spread-spectrum electrical signal and a PN code sequence corresponding to the PN code sequence used to encode one of the spread-spectrum information signals, the code acquisition circuitry operable to align the PN code sequence with the one of the spread-spectrum information signals in the spread-spectrum electrical signal;

a multiplier connected to receive the spread-spectrum electrical signal from the optical receiver and the aligned PN code sequence from the code acquisition circuitry, the multiplier operable to multiply the spread-spectrum electrical signal by the aligned PN code sequence to generate a despread information signal; and integrating and thresholding circuits connected to receive the despread information signal from the multiplier and operable to recover the information signal from the despread information signal.

Nagatani et al. teaches a code acquisition circuit connected to receive the spread-spectrum electrical signal and a PN code sequence corresponding to the PN code sequence used to encode one of the spread-spectrum information signals, the code acquisition circuitry operable to align the PN code sequence with the one of the spread-spectrum information signals in the spread-spectrum electrical signal (7 in figure 20);

a multiplier (7b1 in figure 22) connected to receive the spread-spectrum electrical signal from the optical receiver and the aligned PN code sequence (column 1, line 36) from the code acquisition circuitry (7 in figure 20), the multiplier operable to

multiply the spread-spectrum electrical signal by the aligned PN code sequence to generate a despread information signal (7 in figure 20); and

integrating and thresholding circuits (column 2, lines 40-50) connected to receive the despread information signal from the multiplier and operable to recover the information signal from the despread information signal.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the code acquisition circuit and the multiplier as taught by Nagatani et al. in the receiver of Myers et al. since it is well to be necessary in the dispreading and recovery of information signals in spread-spectrum communication.

(3) With respect to claim 13:

Myers et al. teaches all of the subject matter as described above, except for the code acquisition circuitry comprises a cross-correlator.

Nagatani et al. teaches the code acquisition circuitry comprises a cross-correlator (column 2, line 48, cross correlation is a form of auto correlation, therefore reads on the claim).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use cross-correlation as taught by Nagatani et al. in the receiver of Myers et al. because it increases system capacity (column 7, line 3).

(4) With respect to claim 14:

Myers et al. teaches a wave-division demultiplexer (216 in figure 25) arranged to receive a WDM optical signal, the WDM optical signal comprising spread-spectrum optical signals having mutually different carrier wavelengths, the wave-division

demultiplexer operable to spatially separate the spread-spectrum optical signals constituting the WDM optical signal from one another; and

additional ones of the optical receivers (page 14, paragraph 209, the reference teaches other receivers), the optical receivers being arranged each to receive a different one of the spread-spectrum optical signals from the wave-division demultiplexer (lamda1, lamda2 in figure 25).

(5) With respect to claim 15:

Myers et al. teaches all of the subject matter as described above, except for the optical communications system, wherein the PN code sequences used to spread the spectra of the spread-spectrum information signals are all orthogonal or quasi-orthogonal to each other.

Nagatani et al. teaches the optical communications system, wherein the PN code sequences used to spread the spectra of the spread-spectrum information signals are all orthogonal or quasi-orthogonal to each other (figure 25, shows the construction of orthogonal code, column 10, line 30).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use orthogonal code as taught by Nagatani et al. in the optical communication system taught by Myers et al. because it increases system capacity (column 7, line 3).

(6) With respect to claim 16:

Myers et al. teaches all of the subject matter as described above, except for the optical communications system, wherein the PN code sequences used to spread the

spectra of the spread-spectrum information signals represented by ones of the spread-spectrum optical signals in adjacent optical channels are all orthogonal or quasi-orthogonal to each other.

Nagatani et al. teaches the optical communications system, wherein the PN code sequences used to spread the spectra of the spread-spectrum information signals represented by ones of the spread-spectrum optical signals in adjacent optical channels are all orthogonal or quasi-orthogonal to each other (column 5, lines 27-29 talks about first orthogonal sequence and second orthogonal sequence, which are transmitted from first and second transmitter onto the adjacent channel).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have information signals in adjacent channels orthogonal to each other as taught by Nagatani et al. in the receiver taught by Myers et al. because it increases system capacity (column 7, line 3).

(7) With respect to claim 21:

Myers et al. teaches an optical communication method, comprising performing a spread-spectrum optical signal receiving process, the spread-spectrum optical signal receiving process comprising: receiving a spread-spectrum optical signal representing spread-spectrum information signals (14 in figure 1),

converting the spread-spectrum optical signal to a spread-spectrum electrical signal (page 13, paragraph 194); and

applying spread-spectrum decoding to the spread-spectrum electrical signal (803a-c in figure 55).

However, Myers does not teach the PN code sequence.

Nagatani et al. teaches the PN code sequence (column 1, line 36, 7 in figure 20).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the PN code sequence as taught by Nagatani et al. in the receiver of Myers et al. because it increases system capacity (column 7, line 3).

(8) With respect to claim 22:

Myers et al. teaches the optical communication, additionally comprising:

receiving a WDM optical signal comprising spread-spectrum optical signals having respective different carrier wavelengths (see figure 25, at the input of 216, at the output: lamda1, lamda2...);

demultiplexing the WDM optical signal to recover the spread-spectrum optical signals (216 in figure 25); and

performing the spread-spectrum optical signal receiving process on each of the spread-spectrum optical signals (14 in figure 25).

6. Claims 17, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Foschini et al. in view of Nagatani et al. (6,097,714).

(1) With respect to claim 17:

Foschini et al. teaches an optical communication method, comprising performing a spread-spectrum optical signal generating process, the spread-spectrum optical signal generating process comprising:

generating light (laser osc in figure 2, at the transmitter side); and

modulating the light in response to the spread-spectrum information signals

to generate for transmission a spread-spectrum optical signal having an amplitude modulation representative of the sum of the spread-spectrum information signals (page 373, paragraph A. Modulation and Spreading, see also figure 2 in page 372).

However, foschini et al. does not teach generating orthogonal or quasi-orthogonal pseudo-noise (PN) code sequences;

multiplying each of the information signals by a respective one of the PN code sequences to generate a respective spread-spectrum information signal.

Nagatani et al. teaches teach generating orthogonal or quasi-orthogonal pseudo-noise (PN) code sequences (column 1, lines 33-36);

multiplying each of the information signals by a respective one of the PN code sequences to generate a respective spread-spectrum information signal (column 1, line 36-38).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to generate the orthogonal pseudo-noise code and multiply them by the information signals as taught by Nagatani et al. in the transmitter of Foschini et al. because it increases system capacity (column 7, line 3).

(2) With respect to claim 20:

Foschini et al. teaches all of the subject matter as described above except for performing additional ones of the spread-spectrum optical signal generating process to generate respective spread-spectrum optical signals having different carrier wavelengths; and

wavelength division multiplexing the spread-spectrum optical signals having the

different carrier wavelengths to generate a wavelength-division multiplexed optical signal for transmission.

Nagatani et al. teaches performing additional ones of the spread-spectrum optical signal generating process to generate respective spread-spectrum optical signals having different carrier wavelengths (the signals are modulated in each one of the unit 51.1 to 51.n in figure 1); and

wavelength division multiplexing the spread-spectrum optical signals having the different carrier wavelengths to generate a wavelength-division multiplexed optical signal for transmission (52 in figure 1).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use additional ones of the signal as taught by Nagatani et al. in the transmitter of Foschini et al. because it increases the capacity of the transmitting system.

7. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Foschini et al. and Nagatani et al. (6,097,714) as applied to claim 17 above, and further in view of Odenwalder (6,621,875).

Foschini et al. and Nagatani et al. teaches all of the subject matter as described above except for summing the spread-spectrum information signals to provide a modulation signal.

Odenwalder teaches summing the spread-spectrum information signals to provide a modulation signal (160 in figure 4).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to sum the information signals as taught by Odenwalder in the transmitter of Foschini et al. because it allows many different types of data at the input of the transmitter. Hence it enhances the flexibility of the system (column 8, line 53).

8. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Foschini et al. and Nagatani et al. (6,097,714) as applied to claim 17 above, and further in view of Mori (4,269,482).

Foschini et al. and Nagatani et al. teaches all of the subject matter as described above except for individually modulating the light in response to each one of the spread-spectrum information signals to provide a spread-spectrum optical signal component; and

spatially overlapping the spread-spectrum optical signal components to generate the spread-spectrum optical signal.

Mori teaches for individually modulating the light in response to each one of the spread-spectrum information signals to provide a spread-spectrum optical signal component (fs1 and M1...fsm and Mm in figure 2).

Foschini et al. and Nagatani et al. do not explicitly teach spatially overlapping the spread-spectrum information signals, however the examiner understand that by spreading the information signals the adjacent signals will practically overlap subsequently. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to individually modulate the light as taught by Mori in the

transmitter of Foschini et al. because it allow a variety of different types of information to be transmitted, therefore enhances the flexibility of the system.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Guerssy Azemar whose telephone number is (571)270-1076. The examiner can normally be reached on Mon-Fri (every other Fridays off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Liu Shuwang can be reached on (571)272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Guerssy Azemar

08/30/2006

Shuwang Liu

SHUWANG LIU
SUPERVISORY PATENT EXAMINER